

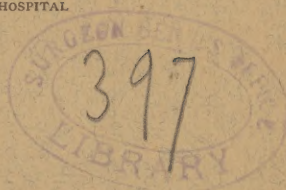
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Intraligamentous Ovarian Cystomata

BY

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THE difference between intraligamentous and the ordinary forms of ovarian cystomata is simply in the position they occupy in relation to the ligaments. The location may be called an unnatural one because it differs from that which ovarian cystomata usually occupy.

The intraligamentous ovarian cystomata are, comparatively, quite rare. This suggests that the causes operative in determining this unusual location of these cystomata are exceptional. The literature on this subject is extremely limited. Two theories have been advanced to explain the topographical anatomy of intraligamentous cystomata. The one assumes that, owing to some error of development, the ovary, during embryonic life, finds its way into the folds of the broad ligament and there remains. In that case, if a cystoma of that ovary occurs it is bound to split up the ligament and convert it into a capsule for itself.

The second theory is that during the growth of the cystoma it burrows, so to speak, into the folds of the ligament, and once having insinuated itself there pushes the folds apart, and these folds grow with the cystoma and

form a ligamentous capsule for it. In order that this may come about, the ovary must be closely attached to the ligament, in place of being held by a special fold of peritoneum, which leaves it, to some extent, free from the ligament proper. Or the ovary may be bound down to the ligament by an inflammatory adhesion. Where a cyst develops deep in the ovary and meets resistance on the free peritoneal surface, it pushes its way in between the folds of the ligament. There is good evidence in favor of this theory in the fact that these cystomata come from the paroöphoron, which is the portion of the ovary which is nearest to the uterine ligament. Furthermore, I have in one of my own cases found the ovary from which the cystomata came embedded in the posterior fold of the ligament. It would be more correct, perhaps, to say that the ovary was stretched out upon the posterior fold of the ligament. It was so changed in form that I should have overlooked it had it not been that there were several small cysts in it surrounded by what appeared to be ovarian stroma.

In another case I found, while enucleating the cyst, that it was very firmly adherent at a point in the posterior fold of the ligament where the ovary should be found. The vessels were larger at that point than anywhere else, which led me to think that the ovary was there; but the parts were so changed by inflammatory products that I could not positively detect any ovarian tissue. This, I think, is sufficient to settle this point in the pathology and causation of some of these cystomata, and presumably the larger portion, if not all, of such. Still, it may be admitted that malposition of the ovary, because of a lesion of development, may obtain in some cases.

These cystomata may be single or multiple. I think, however, they are more often single. All of my own cases, eight in number, have been monocysts. Another interesting feature is that they are generally papillary or proliferous cysts. This, according to some authorities, notably Bland Sutton, of London, is due to the fact that

they are developed from the deeper structures of the ovary, the paroöphoron, as already noted.

The position of these cystomata and their relations to the pelvic organs have a very important bearing upon the question of treatment, as will be seen further on.

In my own practice I have found them occupying widely differing positions, in relation to the ligaments and pelvic organs. In some, the tumor was situated in one ligament, displacing the uterus to the opposite side of the pelvis, and, in a lesser degree, the bladder also. In others the tumor occupied a position in both ligaments and between the uterus and bladder. When thus located the tumor, uterus, bladder, and ligaments have been found high up out of the pelvis, so that the most dependent portion of the tumor could not be easily reached through the vagina. Again, I have found the tumor behind both the uterus and bladder, and yet between the folds of both ligaments. In all of these the pelvic organs were carried up into the abdominal cavity, while the tumor descended deep into the pelvis. It appears that there is a rule which determines the location of those tumors which occupy both ligaments, in regard to their relations to the pelvic and abdominal cavities. This rule may be formulated as follows: When the tumor is between the uterus and bladder all three rise up into the abdomen, whereas if both of these organs are in front of the tumor it dips well down into the pelvis. The reason is that in the one case the vagina arrests the process of burrowing downward, while in the other there is no resistance to the descent of the cystoma.

In all cases the broad ligaments become greatly enlarged and thickened, usually covering the whole cyst, although they are thinned out at the upper portion. When the cyst does not descend into the pelvis and has attained considerable size, the upper portion of the cyst may present a wall of medium thickness; in fact, the ligaments diminish in thickness and vascularity until there is but little left but the peritoneum; and the upper part of the

cyst then appears more like an ordinary intraperitoneal ovarian cystoma.

These facts are of the utmost importance in regard to treatment, and hence the reason for this brief account of the various ways in which they may be situated.

The diagnosis of such cases is of interest chiefly because of the difficulties encountered in operating and the urgent necessity of clearly comprehending the exact conditions present, in order to manage them to the best advantage. I have found it impossible to make a complete and comprehensive diagnosis in all cases. It is generally possible to make out that there was a cystoma in the broad ligament, but with no definite certainty as to its position and topographical anatomy. Judging from the literature on this subject, it appears that others have suffered from a like uncertainty in some cases. When a cystic tumor in the abdomen which is firmly fixed below, with no history of inflammation during the earlier stages of the growth of the tumor, and the uterus is drawn up out of the pelvis and lies behind or in front of the cystoma, I suspect that it is intraligamentous. If the uterus is displaced laterally in a marked degree by the cystoma that is present, or if the cyst descends deep down into the pelvis while the uterus is high up and in front of the cyst, the facts point to the same conclusion. When a portion of the tumor found in the pelvis is cystic, this is a great aid; but, as a rule, these tumors, as already stated, are proliferous, and there is so much solid material in the most dependent part that fluctuation is not found, and the tumor appears to be solid to the touch and may be mistaken for a fibroma or fibrocyst of the uterus. One case was seen by two well-known ovariologists, and both suspected fibroma of the uterus as well as ovarian cystoma. My first impressions were the same, but upon opening the abdomen I found the uterus normal, but displaced upward by an intraligamentous ovarian cystoma. Cases may be divided into two classes, those in which a complete diagnosis can be made, and the other in which the diagnosis

is incomplete. In the one the nature and composition of the tumor, its relations to the abdominal and pelvic organs, and the extent and location of its attachments can be clearly determined, and the other, which is incomplete but sufficient to warrant either operative treatment or a full assurance that the case is not amenable to surgical treatment. The first or complete diagnosis can be made from the usual physical signs and the history. The incomplete diagnosis may be made complete by surgical means, such as aspirating or by laparotomy. It is of the utmost importance to differentiate between these two classes of cases. When only a partial diagnosis is possible, leaving doubts as to a possible malignant element existing in the case, the question of the propriety of ovariectomy may be determined by an examination of the intraperitoneal fluid, which is often present. If this proves negative, the operation is advisable; while if the cells characteristic of malignant disease are found, the case should be left alone. Keeping still to the question of diagnosis, I may say that in cases of intraligamentous cystomata one can usually make sure that an operation is called for and is justifiable, but the diagnosis must often rest as incomplete until the abdomen is opened. At the same time it is not an easy task to complete the diagnosis after laparotomy. A few words on this subject may be admissible, in view of the importance of the matter. We hear much of making an exploratory operation for diagnostic purposes, but I am satisfied that skill and experience are very necessary to do this. To recognize just what is present, and to determine what to do in these cases when the tumor is exposed, is no easy task; and still, upon a rapid inspection and palpation and prompt decision regarding the exact conditions, and how to manage them, depends the success of the surgeon in complicated cases. I may not have seen or carefully thought of all the conditions which simulate, and hence may be mistaken for, intraligamentous cystomata, but such observations as I have made cover the most important part of the ground.

When the tumor is exposed by laparotomy its appearance resembles most closely a uterine fibroma, and owing to the thickness of its walls it feels to the single touch, especially if the cyst is very tense, as usually is the case, like a fibroma; but by resting one finger on the tumor and percussing the abdominal wall at a distant point, fluctuation can be unmistakably made out. This settles that point at once, but leaves still the possibility of a uterine fibrocyst, and although this is not important as bearing upon the main question of removal of the tumor, it affects the method of procedure and should be correctly decided at once. This can be done by tapping, which shows the character of the fluid, which is all sufficient, with few exceptions. If pus is found it may be impossible to say whether the cyst is uterine or ovarian. The tapping, however, gives more room for the introduction of the hand, which enables the operator to make out the attachments and the relation of the tumor to the pelvic organs, and thereby complete the differentiation.

The pregnant uterus also looks, in color and vascularity, like this form of tumor, and may lead to doubt. At least I think that when this mistake has been made, an intraligamentous tumor must have been suspected, because it is the only ovarian cystoma that appears at all like the uterus. This can be made clear by observing contractions of the uterus, which can be easily excited, and by passing the hand into the abdomen the ovaries can be found, and the cervix uteri and normal ligaments will show that there is pregnancy.

These tumors require special treatment, owing to the fact that they are not pedunculated like the ordinary cystomata, but are encapsulated and differ in their relations to the pelvic organs.

The several methods adopted in operating are as follows: Enucleation ranks first, because it is adapted to more cases perhaps than any other. This well-known method, devised and introduced by Dr. Miner, of Buffalo, has been practised by many ovariologists. It was em-

ployed in the treatment of ordinary pedunculated cystoma when first brought out, and is now seldom practised except in parovarian cysts. In fact, I do not think that Dr. Miner ever employed his method in the treatment of the class of cases now under consideration, but if he did, he omitted a description of some of the details which are necessary. Enucleation is adapted to all cases in which the cystoma descends into the pelvis, completely separating one or both ligaments. In all such cases it should be tried, and it will succeed well unless there has been inflammatory action which has firmly united the cyst-wall and folds of the ligaments, or the cyst-wall is thin and friable.

In such conditions the enucleation may prove to be impossible, and other means of treatment, to be hereafter noted, must be adopted. In the first place, it is important to tap the cyst high up in order to avoid wounding the thickest portion of the broad ligament. To do this it is sometimes necessary to extend the incision in the wall of the abdomen higher than usual. The cyst being emptied and drawn well out of the wound, the separation of the ligament and cyst-wall should be begun at that point high up where the ligament is so thinned out as to be hardly noticeable. When the dissection is begun all around, the capsule can be lifted up and the dissection continued with the knife-handle, and finally the deeper portions can be separated with the finger. The traction should be made upon the cyst-wall, as the capsule or ligaments are easily lacerated. During enucleation, if any large vessel, artery, or vein is injured, it should be ligated or controlled with forceps at once. The management of the ligaments, after the cystoma is removed, is first directed to the control of hemorrhage. In some cases a general oozing is all that there is. Occasionally a wounded vessel here and there needs ligating. When the cyst extends deep down into the pelvis there is often very troublesome bleeding from veins. These should be ligated, if possible; but if that cannot be done, pressure with a hot sponge should be tried, and, if

that fail, styptics may be used. The ligamentous capsule now presents a pouch, the inner surface of which is raw, and from which there will be some bleeding and much serous oozing. This should be treated as follows: The upper portion of the opposing sides should be folded in so as to bring the peritoneal surfaces together, and these should be fixed by a continuous catgut suture. The suturing should begin on both sides, and be from the sides toward the centre, and close the parts, except at a point beneath the abdominal wound, where an open space should be left for the drainage-tube. If the ligaments thus brought together by sutures can be brought up to the lower angle of the abdominal wound, they should be fixed to the abdominal wall by silk sutures passed through the ligaments on each side of the opening for the drainage-tube, and then through the wall of the abdomen. When the ligaments cannot be brought up to the wall of the abdomen a drainage-tube without side openings should be carried down to the bottom of the cavity.

While this mode of treatment is perfectly satisfactory in suitable cases, there are difficulties attending the operation in exceptional cases, and hence certain dangers. The cyst-wall may be easily torn, and hence the danger of leaving portions of it. When this happens it is necessary to destroy the secreting surface. This may possibly be done by applying pure carbolic acid. The most difficult part of the operation, in some cases, is to stop the bleeding. This has been referred to; but I may say further, that the oozing at the time of operating, and the liability to suppuration which may occur afterward, render the convalescence rather tedious in many cases.

The next procedure is to remove the cystoma, and its capsule also, by ligating the ligament below the tumor. This method is adapted to those cases in which the cyst is situated in one broad ligament and does not dip down very far into the pelvis. Such cases are described in books as having a very broad pedicle, but the most that

can be correctly said of them is that they are partially pedunculated. In this condition the ligament can be ligated with the repeated continuous ligature. This is applied in the following manner : One end of the ligature is passed through the ligament and a portion of it tied, then one end of the ligature is passed through the portion already ligated, then carried forward, and brought back through the ligament in such a way as to secure another portion, and the two ends again tied, and so on until the whole is secured. The cyst and its capsule are then cut off. This leaves no cavity, arrests all possible hemorrhage, and in this respect is all that can be desired. But there are difficulties and dangers that may arise, even in cases where it is applicable. There is danger of wounding the ureter or including it in the ligature. A knowledge of the location of the ureter and its anatomical relations are not always sufficient to guard against this accident, because the ureter may be displaced. By drawing the cyst and ligament out of the abdominal wound it may be possible to see that the ureter is not in the way ; but this cannot always be done, and then one has to depend upon the touch to localize the ureter and avoid it. This is possible, owing to the fact that the ureter feels like a cord crossing the ligament, but in case the tissues are thickened by inflammatory products it is difficult indeed to find the ureter.

There is still another way of managing these cases, and that is a combination of the two methods already described. It is well adapted to cases that can be enucleated easily, and has the advantage of surely avoiding the ureter. The cyst is first enucleated, and the capsule, or so-called pedicle, is tied and cut off. The advantages are that the capsule is easier to be handled after the cyst is removed, and there is no danger of including any portion of the cyst in the ligature, an accident that may occur in operating by the second method alone. There is one fortunate feature in this method of treatment, viz., in case enucleation cannot be effected ligation alone can be

resorted to. It is well, then, to try enucleation, even if it has to be abandoned.

There still remain for consideration cases that cannot be removed by any of the methods known at the present time, and there are such. A cystoma that descends into the pelvis and has become firmly adherent to the ligaments by inflammatory products cannot be enucleated, neither can the capsule be ligated. At least enucleation cannot be done with any degree of safety. That complete removal of such tumors has been tried is no doubt true, but the result has been to open into the rectum, and cause uncontrollable bleeding or peritonitis, either of which must prove fatal. These complications are always present in suppurating intraligamentous cystomata, and hence when pus is found on tapping it may be inferred that enucleation is impossible. I have found, however, that a non-suppurative cellulitis has so firmly united the cyst-wall to the ligamentous capsule that they could not be separated. The treatment of such cases is by drainage. I am well aware that the more skilful the operator the more surely will he overcome difficulties, and more seldom will he have incomplete operations ; but when the conditions which have been named are present, I am confident that it is wiser and better to empty the cystoma and unite the cyst-wall to the abdominal wall, and then drain by means of the ordinary tube. The cyst fluid is usually septic (this is always so in suppurating cysts), and it is very difficult indeed to save the peritoneum and abdominal wounds from contamination. After emptying the cyst and opening it, it should be thoroughly cleaned out with sponges or absorbent cotton, and papillary tissue, if present, may be scraped off. This should be done with the cyst drawn well out of the wound. If the cystoma is large, an effort should be made to separate the cyst-wall capsule as far down as possible. If that can be done, the detached portion of the sac is then cut off, taking care to have it so that the central portion will come up to the abdominal wall without dragging. Bleeding vessels in the

cyst-wall are ligated or twisted. The detached portions of the capsule are folded into the cyst and united with a continuous suture, beginning on each side and continuing toward the centre, but leaving space enough between their meeting to admit the drainage-tube. In doing this, great care has to be taken to keep the hands and instruments which have touched the inside of the cyst from coming in contact with the peritoneum or abdominal wound. Again, in fastening the partially closed cyst to the abdominal wall, it is necessary to pass the needle from the abdominal wall into the cyst, and not use that needle again unless it is thoroughly cleansed. If, on the contrary, the sutures are passed from the inside of the cyst outward, septic material will surely be carried into the tissues of the abdominal wall, and trouble will follow. One suture on each side of the opening in the cyst for the drainage-tube will suffice to unite the wall of the cyst and the abdominal wall at these points, and one suture above, and one below, carried through the sides of the abdominal wall, and into the cyst-wall, but not through, will complete the coaptation. If this much is accomplished without contaminating the normal tissues there is very little danger of septic peritonitis occurring, or septic inflammation of the abdominal walls. The drainage is so perfect that though suppuration in the remaining portion of the cyst may go on, there is not much danger from it if it does not extend outside the sac. The drainage must be long continued, and the convalescence is very slow, comparatively. In case the secreting surface of the cyst has been thoroughly destroyed by suppuration the recovery is usually not long delayed. Contraction and closure of the cavity comes in a month or thereabout. If, on the other hand, the secreting surface is left, the discharge may go on for months; but the patient, meantime, may completely regain her health and be able to attend to her duties comfortably. When a small pocket and sinus remain, it facilitates recovery to inject iodine or carbolic acid. I may be prejudiced in favor of this mode of treat-

ing such cases from the fact that I have had two intra-ligamentous cystomata and four adherent ordinary ovarian cystomata which were treated by drainage, and all recovered.

